



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1102270  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

|                                   |                 |   |
|-----------------------------------|-----------------|---|
| Spud Date or<br>Recompletion Date | Date Reached TD | Completion Date or<br>Recompletion Date |
|-----------------------------------|-----------------|---|

API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



1102270

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

|  |   |
|--|---|
| Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No<br><i>(Attach Additional Sheets)</i><br><br>Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No<br><br>Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No<br><br>List All E. Logs Run: _____ | <input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample<br><br>Name Top Datum |
|--|---|

| CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used  |                   |                           |                   |               |                |              |                            |
|---|-------------------|---------------------------|-------------------|---------------|----------------|--------------|----------------------------|
| Report all strings set-conductor, surface, intermediate, production, etc. |                   |                           |                   |               |                |              |                            |
| Purpose of String   | Size Hole Drilled | Size Casing Set (In O.D.) | Weight Lbs. / Ft. | Setting Depth | Type of Cement | # Sacks Used | Type and Percent Additives |
|   |                   |                           |                   |               |                |              |                            |
|   |                   |                           |                   |               |                |              |                            |
|   |                   |                           |                   |               |                |              |                            |

| ADDITIONAL CEMENTING / SQUEEZE RECORD  |                  |                |              |                            |
|--|------------------|----------------|--------------|----------------------------|
| Purpose:   | Depth Top Bottom | Type of Cement | # Sacks Used | Type and Percent Additives |
| <input type="checkbox"/> Perforate<br><input type="checkbox"/> Protect Casing<br><input type="checkbox"/> Plug Back TD<br><input type="checkbox"/> Plug Off Zone |                  |                |              |                            |
|  |                  |                |              |                            |

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*  
 Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*  
 Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

| Shots Per Foot | PERFORATION RECORD - Bridge Plugs Set/Type<br>Specify Footage of Each Interval Perforated | Acid, Fracture, Shot, Cement Squeeze Record<br><i>(Amount and Kind of Material Used)</i> | Depth |
|----------------|---|--|-------|
|                |   |  |       |
|                |   |  |       |
|                |   |  |       |
|                |   |  |       |

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR: \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

| Estimated Production Per 24 Hours | Oil Bbls. | Gas Mcf | Water Bbls. | Gas-Oil Ratio | Gravity |
|-----------------------------------|-----------|---------|-------------|---------------|---------|
|                                   |           |         |             |               |         |

|  |   |   |
|--|---|---|
| <b>DISPOSITION OF GAS:</b><br><input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease<br><i>(If vented, Submit ACO-18.)</i> | <b>METHOD OF COMPLETION:</b><br><input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled<br><i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____<br><i>(Submit ACO-4)</i> | <b>PRODUCTION INTERVAL:</b><br>_____<br>_____ |
|--|---|---|

|           |                                |
|-----------|--------------------------------|
| Form      | ACO1 - Well Completion         |
| Operator  | O'Brien Energy Resources Corp. |
| Well Name | Crooked Creek 6-8              |
| Doc ID    | 1102270                        |

Tops

| Name                | Top  | Datum |
|---------------------|------|-------|
| Heebner             | 4444 | -1784 |
| Toronto             | 4469 | -1809 |
| Lansing             | 4594 | -1934 |
| Marmaton            | 5250 | -2590 |
| Cherokee            | 5420 | -2760 |
| Atoka               | 5679 | -3019 |
| Morrow              | 5738 | -3078 |
| Mississippi Chester | 5877 | -3217 |
| Ste. Genevieve      | 6118 | -3458 |
| St. Louis           | 6212 | -3552 |

Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

November 21, 2012

Joseph Forma  
O'Brien Energy Resources Corp.  
18 CONGRESS ST, STE 207  
PORTSMOUTH, NH 03801-4091

Re: ACO1  
API 15-119-21325-00-00  
Crooked Creek 6-8  
SE/4 Sec.08-33S-29W  
Meade County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,

Joseph Forma  
Vice President  
O'Brien Energy Resources Corp.



**BASIC**  
ENERGY SERVICES  
Liberal, Kansas

### Cement Report

|                                |                   |                                  |                 |                     |
|--------------------------------|-------------------|----------------------------------|-----------------|---------------------|
| Customer <i>O'Brien Energy</i> |                   | Lease No. <i>1492</i>            |                 | Date <i>9-29-12</i> |
| Lease <i>Crooked Creek</i>     |                   | Well # <i>6-8</i>                |                 | Service Receipt     |
| Casing <i>8 3/4</i>            | Depth <i>1492</i> | County <i>Menard</i>             | State <i>KS</i> |                     |
| Job Type <i>8 3/4 Surface</i>  | Formation         | Legal Description <i>8-33-29</i> |                 |                     |

| Pipe Data                    |                          | Perforating Data |    | Cement Data   |
|------------------------------|--------------------------|------------------|----|---|
| Casing size <i>8 3/4 24"</i> | Tubing Size <i>2 3/8</i> | Shots/Ft         |    | Lead <i>400 sk ACon - 3% CC, 1/4" Poly, .2% WCA-1</i> |
| Depth <i>1492 ft</i>         | Depth                    | From             | To |   |
| Volume                       | Volume                   | From             | To | Tail in <i>150 sk Premium Plus - 2% CC, 1/4" Poly</i> |
| Max Press                    | Max Press                | From             | To |   |
| Well Connection              | Annulus Vol.             | From             | To |   |
| Plug Depth <i>1450 ft</i>    | Packer Depth             | From             | To |   |

| Time        | Casing Pressure | Tubing Pressure | Bbls. Pumped | Rate     | Service Log                                 |
|-------------|-----------------|-----------------|--------------|----------|---|
| <i>0130</i> |                 |                 |              |          | <i>On Location - Spot + Rig up</i>          |
| <i>0130</i> |                 |                 |              |          | <i>Casing on bottom - Break Circulation</i> |
| <i>0145</i> |                 |                 |              |          | <i>Safety Meeting</i>                       |
| <i>0200</i> | <i>1500</i>     |                 |              |          | <i>Pressure Test</i>                        |
| <i>0204</i> | <i>200</i>      |                 | <i>210</i>   | <i>6</i> | <i>Mix 400 sk ACon @ 11.4 PPG</i>           |
| <i>0243</i> | <i>200</i>      |                 | <i>36</i>    | <i>6</i> | <i>Mix 150 sk Prem Plus @ 14.8 PPG</i>      |
| <i>0301</i> |                 |                 |              |          | <i>Shut Down - Drop top plug</i>            |
| <i>0305</i> | <i>50</i>       |                 | <i>0</i>     | <i>6</i> | <i>Start Displacing</i>                     |
| <i>0317</i> | <i>200</i>      |                 | <i>72</i>    | <i>2</i> | <i>Slow Rate</i>                            |
| <i>0323</i> | <i>300</i>      |                 | <i>82</i>    | <i>2</i> | <i>Slow Rate</i>                            |
| <i>0337</i> | <i>300-800</i>  |                 | <i>92</i>    |          | <i>Bump Plug</i>                            |
| <i>0338</i> | <i>800-0</i>    |                 |              |          | <i>Release Pressure - Float Held</i>        |
|             |                 |                 |              |          | <i>Circulate Cement to the p.t</i>          |

|               |              |                    |                    |                    |
|---------------|--------------|--------------------|--------------------|--------------------|
| Service Units | <i>21755</i> | <i>38111/19919</i> | <i>19827/19511</i> | <i>38750/27725</i> |
| Driver Names  | <i>Kirby</i> | <i>Ed</i>          | <i>Julian</i>      | <i>Victor</i>      |

Customer Representative \_\_\_\_\_ Station Manager *Jerry Bennett* \_\_\_\_\_ Cementer *Kirby Harper* \_\_\_\_\_

# Cement Report

|                                     |                                   |                         |
|-------------------------------------|-----------------------------------|-------------------------|
| Customer<br><i>O'Brien Energy</i>   | Lease No.                         | Date<br><i>10-17-12</i> |
| Lease<br><i>Crooked Creek</i>       | Well #<br><i>6-4</i>              | Service Receipt         |
| Casing                              | Depth                             | County<br><i>Mcade</i>  |
| State<br><i>KS</i>                  | Job Type<br><i>4 1/2 Producer</i> | Formation               |
| Legal Description<br><i>4-33-29</i> |                                   |                         |

| Pipe Data                        |                     | Perforating Data |    | Cement Data                   |
|----------------------------------|---------------------|------------------|----|-------------------------------|
| Casing size<br><i>4 1/2 10.5</i> | Tubing Size         | Shots/Ft         |    | Lead<br><i>180 sk AA-2</i>    |
| Depth<br><i>6277 ft</i>          | Depth<br><i>580</i> | From             | To | <i>5% W60, 10% Salt,</i>      |
| Volume<br><i>99</i>              | Volume              | From             | To | <i>16% C-15, X-2 DeSomer</i>  |
| Max Press                        | Max Press           | From             | To | <i>5# C. Isomite</i>          |
| Well Connection                  | Annulus Vol.        | From             | To | Tail in<br><i>50 sk 60/40</i> |
| Plug Depth<br><i>6249</i>        | Packer Depth        | From             | To | <i>For Rat + Mouse</i>        |

| Time        | Casing Pressure | Tubing Pressure | Bbls. Pumped | Rate     | Service Log                                |
|-------------|-----------------|-----------------|--------------|----------|--|
| <i>0700</i> |                 |                 |              |          | <i>On Location - Spot + Rig up</i>         |
| <i>1030</i> |                 |                 |              |          | <i>Casing on bottom - Break Circ.</i>      |
| <i>1050</i> |                 |                 |              |          | <i>Safety Mud run</i>                      |
| <i>1110</i> |                 | <i>200</i>      | <i>5</i>     | <i>5</i> | <i>Pump 5 BBL Fresh Water</i>              |
| <i>1112</i> |                 | <i>200</i>      | <i>12</i>    | <i>5</i> | <i>Pump 12 BBL Sealed Mud Flush</i>        |
| <i>1115</i> |                 | <i>200</i>      | <i>5</i>     | <i>5</i> | <i>Pump 5 BBL Fresh Water</i>              |
| <i>1117</i> |                 | <i>200</i>      | <i>48</i>    | <i>5</i> | <i>Mix 180 sk AA-2 @ 14.8 PPG</i>          |
| <i>1126</i> |                 |                 |              |          | <i>Shut Down - Clean Lines - Drop plug</i> |
| <i>1132</i> |                 | <i>100</i>      | <i>0</i>     | <i>5</i> | <i>Displace with 99.3 BBL</i>              |
| <i>1147</i> |                 | <i>400</i>      | <i>79</i>    | <i>5</i> | <i>Obs. Displacement Reaches Cement</i>    |
| <i>1149</i> |                 | <i>600</i>      | <i>89</i>    | <i>2</i> | <i>Slow Rate!</i>                          |
| <i>1154</i> |                 | <i>600</i>      | <i>99</i>    |          | <i>Pump Plug - Plug didn't land</i>        |
| <i>1158</i> |                 | <i>600-0</i>    |              |          | <i>Release Pressure - Flats held</i>       |
|             |                 |                 | <i>13</i>    |          | <i>Plug Rat + Mouse holes</i>              |

|               |              |                    |                    |  |  |
|---------------|--------------|--------------------|--------------------|--|--|
| Service Units | <i>21755</i> | <i>38111/19919</i> | <i>30463/37547</i> |  |  |
| Driver Names  | <i>Kirby</i> | <i>Ed</i>          | <i>Calib</i>       |  |  |

*Rodger Pearson* Customer Representative     
 *Jerry Bennett* Station Manager     
 *Kirby Harper* Cementer

**O'Brien Energy Resources, Inc.**  
**Crooked Creek No. 6-8, Angell South Field**  
**Section 8, T33S, R29W**  
Meade County, Kansas  
October 2012

**Well Summary**

The O'Brien Energy Resources, Crooked Creek No. 6-8, Angel South Field, was drilled to a total depth of 6300' in the Mississippian St. Louis Formation. It offset the Crooked Creek No. 4-8 by 950' to the South. Formation tops ran 2' to 6' high relative to this offset from the Heebner to the Morrow. The Chester came in 5' and the Ste. Genevieve 4' low.

An excellent hydrocarbon show occurred in an Upper Morrow Sandstone(5772'-5804') and consists predominately of a Sandstone in 50% of the samples: Light to medium brown, light green to gray, Speckled green and salt and peppered, friable, fine lower well sorted subround grains, occasionally fine upper to very fine lower and moderately sorted, calcareous cement, clean, glauconitic, excellent intergranular and occasional vuggy porosity, bright yellow to gold hydrocarbon fluorescence in all the Sandstone, good streaming cut, gas and oil bubbles when crushed, oil odor. A 90 Unit gas increase occurred from the upper interval and 90 Units from the lower interval and with a tighter 40 to 50 Units in between. Several Sandstone lithology types were documented.

4 ½" production casing was run on the Crooked Creek No. 6-8 on 10/17/12.

Respectfully Submitted,



Peter Debenham

## WELL DATA

Operator: O'Brien Energy Resources, Inc., John Forma – Portsmouth, NH  
Geologist: Paul Wiemann – Denver, CO

Prospect Geologist: David Ward, Ed Schuett, Denver

Well: Crooked Creek No. 6-8, Angell South Field

Location: 1350' FSL & 335' FEL, Section 8, T33S, R29W, Meade County, Kansas – Southeast of Plains.

Elevation: Ground Level 2651', Kelly Bushing 2663'

Surface Owner: Carl Utz, 321 Lilac Dr., Liberal, KS

Contractor: Duke Drilling Rig No. 6, Type: Double jackknife, triple stand, Toolpusher Rick Schollenbarger, Drillers: Brett Bridwell, Danny White, Saul Garcia

Company Man: Roger Pearson – Liberal, Kansas

Spud Date: 9/28/12

Total Depth: 10/16/12, Driller 6323', Logger 6323', St. Louis Formation

Casing Program: 35 joints of 8 5/8", J-2, 24Lbs/ft, set at 1492'.

Mud Program: Winter Mud, engineer Adam Norris, Theran Hegwood, displaced 2600', Chem. gel/LCM.

Wellsite Consultant: Peter Debenham with mudlogging trailer, Call depth 3000', Box 350, Drake, CO 80515, 720/220-4860.

Samples: 30' to 5700', 20' to TD and 10' through zones of interest.

Electric Logs: Weatherford, engineer Adam Sill , Array Induction, Compensated Neutron/Density, Microlog, Hi Res.

Status: 4 ½" production casing run 2/17/2012.



## WELL CHRONOLOGY

| <u>10 PM</u><br><u>DATE</u> | <u>DEPTH</u> | <u>FOOTAGE</u> | <u>RIG ACTIVITY</u>  |
|-----------------------------|--------------|----------------|--|
| 9/27                        |              |                | Move to and rig up rotary tools. Mix spud mud. Drill mouse hole and rathole.   |
| 9/28                        | 1480'        | 1480'          | Spud in 12 ¼" surface hole to 1480'. Survey(1 deg.). Service rig.  |
| 9/29                        | 1810'        | 330'           | To 1492' and circulate and trip for surface casing. Rig up casers and run and cement 35 joints of 8 5/8" set at 1492' with 550 sacks cement – plug down 3:30 am. Wait on cement. Nipple up and pressure test BOP – blind ram to 350 psi. Trip in and drill plug and cement and 7 7/8" hole to 1810'. Draw works shaft broke. Wait on mechanic. |
| 9/30                        | 1810'        | 0'             | Wait on orders. Rig down draw works and ship to shop.  |
| 9/31 – 10/11                |              |                | Wait on draw works.  |
| 10/12                       | 2617'        | 807'           | Rig up draw works and circulate hole. To 2617' and drilling.   |
| 10/13                       | 4215'        | 1598'          | To 3100' and displace hole and survey(1 deg.). Service and drill.  |
| 10/14                       | 5265'        | 1050'          | Run 42 stand wiper trip.   |
| 10/15                       | 6200'        | 935'           |  |
| 10/16                       | 6300'        | 100'           | To 6300'TD and circulate. Short trip 41 stands and circulate and condition mud. Drop survey(1 ½ deg.) and trip out for logs and run Elogs. Trip and and circulate. Trip out laying down and run and cement 4 ½" production casing to TD.   |
| 10/17                       | TD           |                | Run and cement surface casing. Rig down.   |

## BIT RECORD

| <u>NO.</u>            | <u>MAKE</u> | <u>TYPE</u> | <u>SIZE</u> | <u>OUT</u> | <u>FOOTAGE</u> | <u>HOURS</u> |
|-----------------------|-------------|-------------|-------------|------------|----------------|--------------|
| 1                     | STC         | Retip       | 12 ¼"       | 1480'      | 1480'          | 24 ¼         |
| 2                     | STC         | RR          | 7 7/8"      | 1810'      | 330'           | 5 ¾          |
| 3                     | STC         | M1616       | 7 7/8"      | 6300'      | 4490'          | 87 1/4       |
| Total Rotating Hours: |             |             |             |            |                | 117.25       |
| Average:              |             |             |             |            |                | 53.7 Ft/hr   |

## DEVIATION RECORD - degree

499' 1, 1492' 1 ¼, 2617' 1, 4025' 1, 6300' 1 1/2

**MUD PROPERTIES**

| <u>DATE</u> | <u>DEPTH</u> | <u>WT</u>     | <u>VIS</u> | <u>PV</u> | <u>YP</u> | <u>pH</u> | <u>WL</u> | <u>CL</u> | <u>LCM-LBS/BBL</u> |
|-------------|--------------|---------------|------------|-----------|-----------|-----------|-----------|-----------|--------------------|
| 9/28        | 920'         | 9.1           | 40         | 9         | 21        | n/c       | 8.0       | 2500      | --                 |
| 9/29        | 1492'        | cement casing |            |           |           |           |           |           |                    |
| 9/30        | 1810'        | 8.3           | 27         |           |           |           |           |           |                    |
| 10/12       | 2143'        | 8.8           | 32         | 4         | 4         | n/c       | 8.0       | 3000      | 5                  |
| 10/13       | 3681'        | 9.0           | 38         | 10        | 14        | n/c       | 9.0       | 7500      | 6                  |
| 10/14       | 5014'        | 8.9           | 45         | 12        | 10        | 12.0      | 9.5       | 6000      | 6                  |
| 10/15       | 5638'        | 9.0           | 43         | 10        | 18        | 7.0       | 11.0      | 3000      | 6                  |
| 10/16       | 6300'        | 9.0           | 55         | 16        | 10        | 6.4       | 10.0      | 3000      | 10                 |

**ELECTRIC LOG FORMATION TOPS- KB Elev. 2660'**

| <u>FORMATION</u>    | <u>DEPTH</u> | <u>DATUM</u> | <u>*Crooked Creek No. 4-8</u> |                 |
|---------------------|--------------|--------------|-------------------------------|-----------------|
|                     |              |              | <u>DATUM</u>                  | <u>POSITION</u> |
| Casing              | 1490'        |              |                               |                 |
| Heebner             | 4444'        | -1784'       | -1786'                        | +2'             |
| Toronto             | 4469'        | -1809'       | -1810'                        | +1'             |
| Lansing             | 4594'        | -1934'       | -1930'                        | -4'             |
| Marmaton            | 5250'        | -2590'       | -2592'                        | +2'             |
| Cherokee            | 5420'        | -2760'       | -2766'                        | +6'             |
| Atoka               | 5679'        | -3019'       | -3025'                        | +6'             |
| Morrow              | 5738'        | -3078'       | -3082'                        | +4'             |
| Morrow Sandstone    | 5772'        | -3112'       |                               |                 |
| Mississippi Chester | 5877'        | -3217'       | -3222'                        | +5'             |
| Ste. Genevieve      | 6118'        | -3458'       | -3454'                        | -4'             |
| St. Louis           | 6212'        | -3552'       | -3534'                        | -18'            |
| TD                  | 6300'        |              |                               |                 |

\*O'Brien Energy Resources, Crooked Creek No. 4-8, 2271'FSL & 526'FEL, Sec. 8 – app. 950' to the North, K.B. Elev. 2656'.

# Petrolific Consulting Services

**Peter Debenham**

P.O. Box 350  
Drake, Colorado 80515

**Wellsite Geology**

720/220-4860  
petrolific@earthlink.net

Scale 1:240 (5"=100') Imperial

Well Name: O'Brien Energy, Crooked Creek No. 6-8, Angell South Field  
Location: 1350'FSL & 335'FEL, Section 8, 33S, R29W, Meade Co., KS  
Licence Number: API: 15-119-21325 Region: Houghton  
Spud Date: 9/28/12 Drilling Completed: 10/16/12  
Surface Coordinates: 1350'FSL & 335'FEL, Section 8, 33S, R29W, Meade Co., KS  
Bottom Hole Coordinates: 1350'FSL & 335'FEL, Section 8, 33S, R29W, Meade Co., KS  
Ground Elevation (ft): 2648' K.B. Elevation (ft): 2660'  
Logged Interval (ft): 4400' To: 6300' Total Depth (ft): 6300'  
Formation: Lansing, Morrow, Chester, Ste Genevieve, St. Louis  
Type of Drilling Fluid: Chemical Gel/LSND/LCM, mud up 2600'

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

## OPERATOR

Company: O'Brien Energy Resources, Corp.  
Address: 18 Congress St., Suite 207  
Portsmouth, NH 03801  
President/Owner John Forma, Geologist Paul Wiemann

## GEOLOGIST



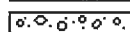
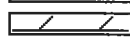
Name: Wellsite: Peter Debenham  
Company: Petrolific Consulting Services  
Address: P.O. Box 350  
Drake, CO 80515  
720/220-4860, Petrolific@gmail.com

## Comments

Duke Drilling Rig No. 6, Type: Double jackknife, triple stand, Toolpusher Rick Schollenbarger, Drillers: Brett Bridwell, Danny White, Mike Brewer, Engineer Roger Pearson, Winter Mud, engineer Adam Norris, displaced 2600', 4 1/2" reduction casing run 10/16/12.

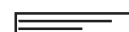
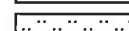
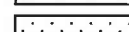
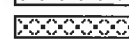
## ROCK TYPES

 Anhy  
 Bent  
 Brec  
 Cht

 Clyst  
 Coal  
 Congl  
 Dol

 Gyp  
 Igne  
 Lmst  
 Meta

 Mrlst  
 Salt  
 Shale  
 Shcol

 Shgy  
 Slstst  
 Ss  
 Till

### ACCESSORIES

#### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite

- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

#### MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclrag
- Calc
- Carb

- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt

- Sandy
- Silt
- Sil
- Sulphur
- Tuff

#### STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg

- Ssstrg

#### TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

### OTHER SYMBOLS

#### INTERVALS

- Core
- Dst

#### EVENTS

- Rft
- Sidewall

#### POROSITY TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic

- Pinpoint
- Vuggy

#### SORTING

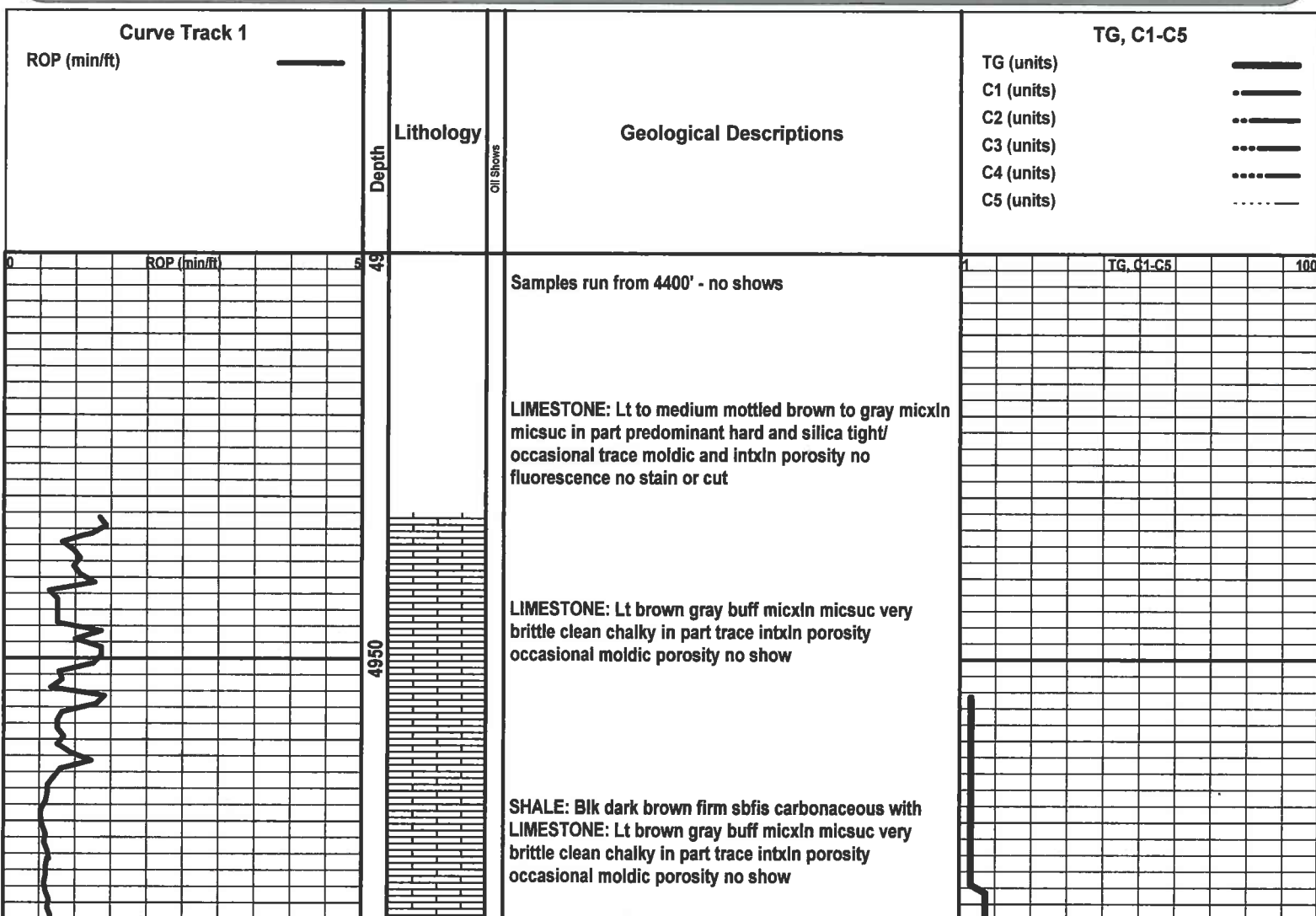
- Well
- Moderate
- Poor

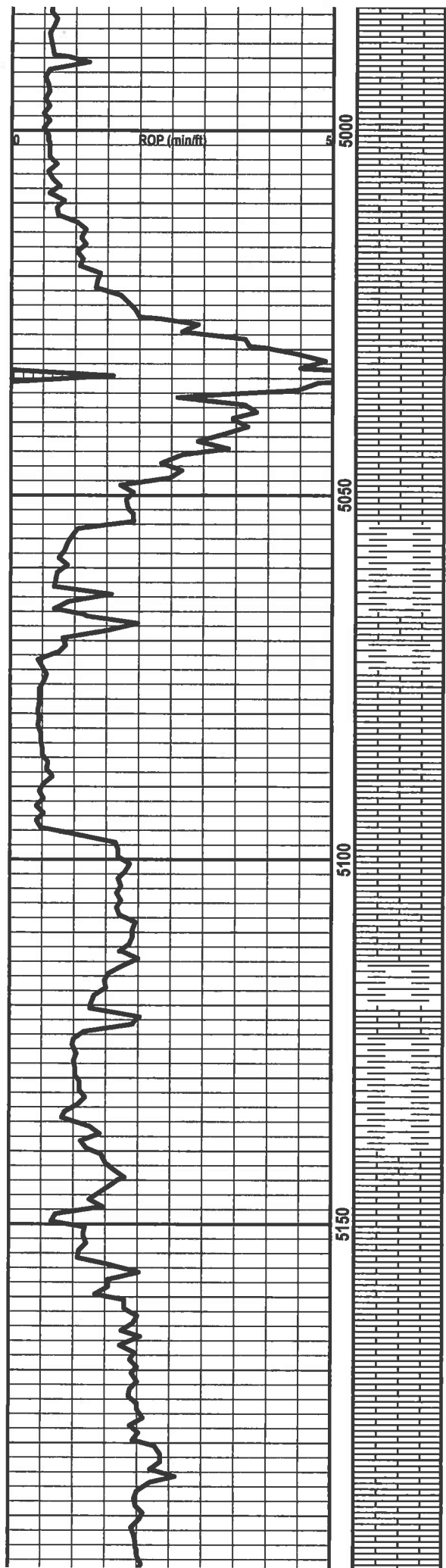
#### ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

#### OIL SHOWS

- Even
- Spotted
- Ques
- Dead





**LIMESTONE:** Med to dark mottled brown light brown buff micro/crpxln micsuc in part clean to marly silica in part predominant hard and tight occasional micsuc with intxn porosity no fluorescence no stain or cut

**LIMESTONE:** Med to dark mottled brown micr crpxln hard dense silica argillaceous to marly fossils tight no show

**SHALE:** Dk brown black dark gray hard blocky carbonaceous calcareous fossils silica in part interbed with LIMESTONE: Pred as above micsuc in part with trace intercrystalline porosity no fluorescence no stain or cut

**LIMESTONE:** Med mottled brown oomicr fine crystalline brittle clean very oolites well/exc oomoldic porosity no fluorescence no stain or cut mottled orange mineral fluorescence

**SHALE:** Blk very dark brown hard sbfis to blocky waxy carbonaceous silty

**LIMESTONE:** Dk mottled gray to brown occasional black crpxln hard dense silica argillaceous to marly in part tight no show

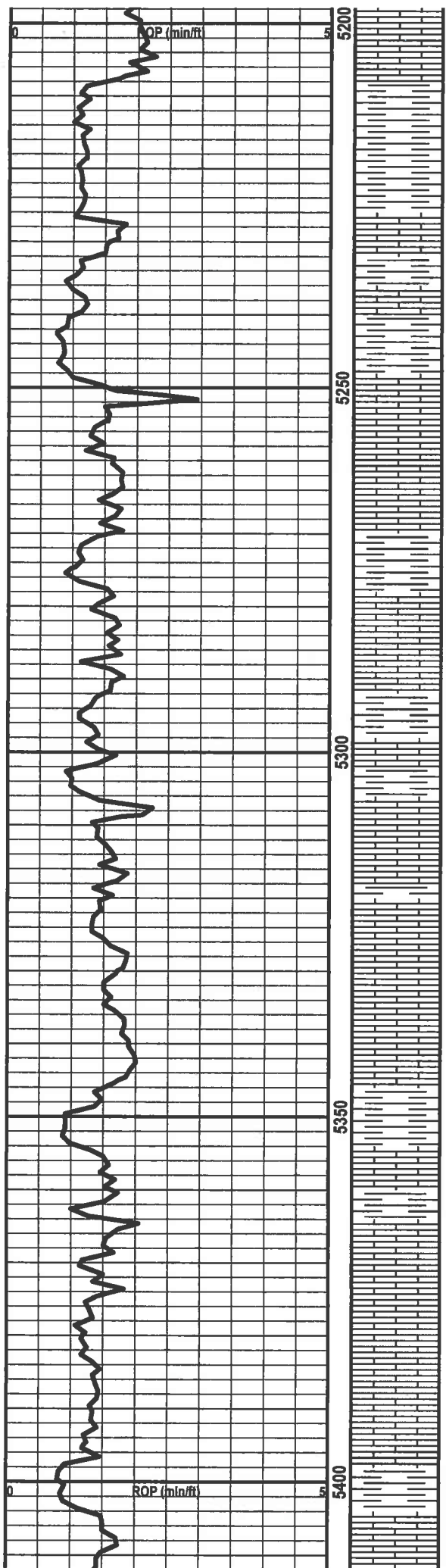
**SHALE:** Blk very dark brown hard sbfis to blocky waxy carbonaceous silty

**LIMESTONE:** Dk mottled brown gray micr crpxln hard dense argillaceous to marly fossils carbonaceous tight no show with **SHALE:** Blk dark brown hard sbfis carbonaceous

**LIMESTONE:** Med to dark mottled brown fine crystalline brittle clean very oolites exc oomoldic porosity trace intxn porosity mottled orange mineral fluorescence no stain or cut no show

TG, C1-C5

100



**LIMESTONE:** Med mottled brown crpxln hard dense brittle in part argillaceous fossils occasional exc oomoldic porosity no show

**SHALE:** Blk dark brown firm fissile carbonaceous silty interbed with LIMESTONE: Pred as above occasional exc oomoldic porosity no fluorescence no stain or cut

**LIMESTONE:** Mot brown to gray fine crystalline hard dense silica in part fossils oolites clean tight no show

**SHALE:** Blk dark gray firm sbfis to blocky carbonaceous calcareous silty to sndy in part interbed with **LIMESTONE:** Lt brown buff white fine crystalline sbchky clean to argillaceous soft brittle no show

**LS:** Lt brown white tan micxln chalky in part clean to argillaceous soft brittle poor vis porosity no fluorescence no stain or cut

**SHALE with interbed LIMESTONE:** as above no show

**LIMESTONE:** Lt brown buff white fine crystalline chalky in part soft brittle clean no show with **LIMESTONE:** Med mottled brown oomicr micxln very oolites well/exc oomoldic porosity no show occasional interbed with **SHALE:** Blk firm fissile

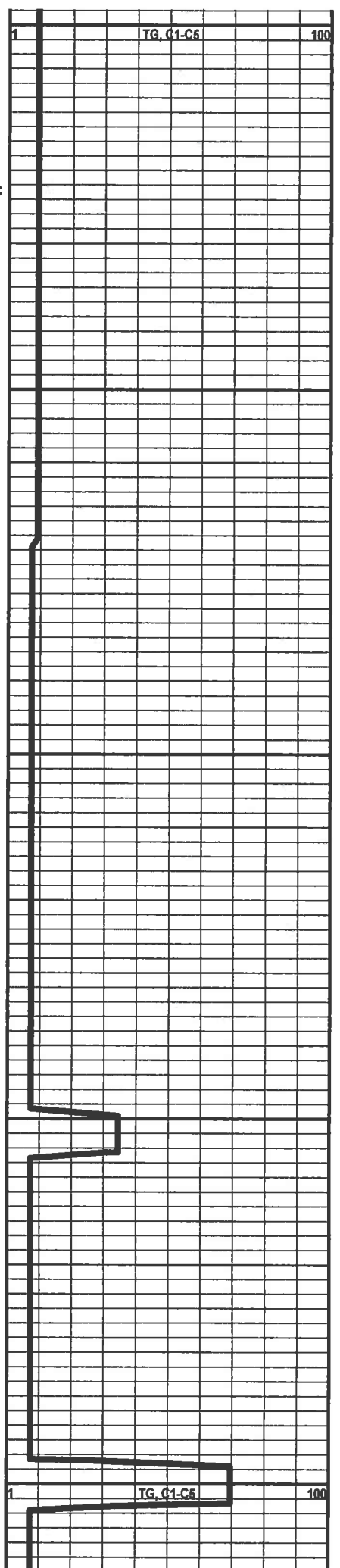
**LIMESTONE:** Lt brown buff white fine crystalline chalky in part soft brittle clean no show with **LIMESTONE:** Med mottled brown oomicr micxln very oolites well/exc oomoldic porosity no show

**SHALE:** Blk dark brown firm sbfis to blocky waxy to silty carbonaceous

**LIMESTONE:** Brn micxln micsuc in part clean fossils sbchky tight no show with **LIMESTONE:** Med mottled brown oomicr micxln very oolites well/exc oomoldic porosity no show interbed with **SHALE:** Dk brown to gray black firm sbfis to blocky carbonaceous

**SHALE:** Blk firm fissile carbonaceous

**LIMESTONE:** Med to dark brown gray crpxln hard dense silica fossils clean to argillaceous tight no show



Cherokee

5450

5500

5550

5600

ROP (min/ft)

SHALE: Blk firm fissile carbonaceous

LIMESTONE: Med to dark brown occasional black crpxln hard dense silica argillaceous fossils poor vis porosity no show

SHALE: Blk dark gray to brown sbfis firm carbonaceous silty

LIMESTONE: Med to dark brown to gray biomicr crpxln hard dense fossils argillaceous to marly carbonaceous tight no shoow interbed with SHALE: Blk firm fissile carbonaceous

LIMESTONE: Med to dark brown to gray biomicr crpxln hard dense fossils argillaceous to marly carbonaceous tight no shoow interbed with SHALE: Blk firm fissile carbonaceous

LIMESTONE: Med to dark mottled brown gray occasional black micr crpxln hard dense argillaceous to marly fossils carbonaceous tight interbed with SHALE: Blk firm fissile carbonaceous

SHALE: Blk dark brown firm sbfis to blocky carbonaceous calcareous

LIMESTONE: Dk brown fine crystalline hard dense fossils argillaceous to marly tight no show with SHALE: as above

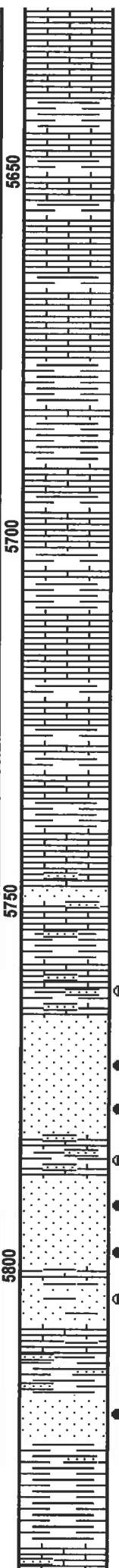
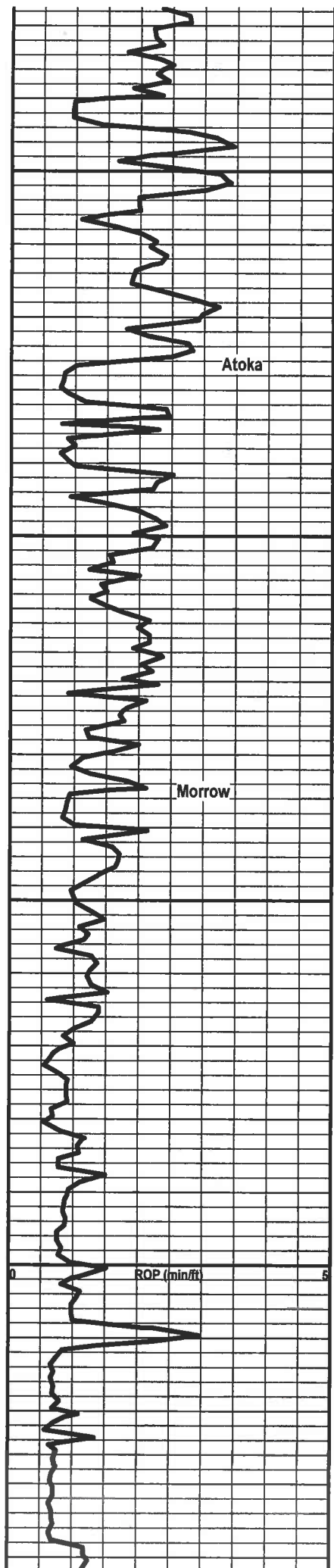
SHALE: Blk dark brown to gray hard blocky to sbfis carbonaceous calcareous silty

LIMESTONE: Mot brown to gray buff micxln firm dense to trace intxln porosity sbchky in part clean to argillaceous no fluorescence no stain or cut

SHALE: Blk dark brown firm sbfis to blocky carbonaceous interbed with LIMESTONE: Mot brown buff fine crystalline hard dense sbchky poor vis porosity no fluorescence no stain or cut

TG, C1-C5

100



**LIMESTONE:** Medium to light brown, micrite, finely crystalline to microsucrosic in part, clean, fossiliferous, occ tr intercrystalline porosity, pred tight, no show

**SHALE:** Blk firm fissile carbonaceous interbed with IS: Dk brown black medium to light brown buff micr crpxln to micxln dense sbchky in part fossils clean to marly fossils tight no show trace CHRT

**SHALE:** Blk dark brown firm fissile to blocky waxy to silty carbonaceous interbed with LIMESTONE: Dk to medium brown occasional black crpxln hard dense argillaceous to marly occasional sbchky and clean poor vis porosity no fluorescence no stain or cut

**SHALE:** Blk firm fissile carbonaceous

**LIMESTONE:** Dk brown gray black mottled micr fine crystalline dense argillaceous to marly silty carbonaceous occasional sbchky trace very dull pale blue hydrocarbon fluorescence faint cut no stain very weak show

**SHALE:** Blk firm sbfis carbonaceous calcareous silty in with trace LIMESTONE: as above

**LS:** Mot brn to gy gygn f xln dns cln to arg sndy & glauc ip foss tt no show

**LS:** Lt to med mot brn s&p spec gn micxln sbchky ip cln foss carb sndy & glauc & occ grdng to SS: Grn to gy s&p hd to fri ip arg glauc p vis por tr dull mot orng to yel hydc flor fnt cut no stn with SH: Gy blk gn frm blk wxy to sndy

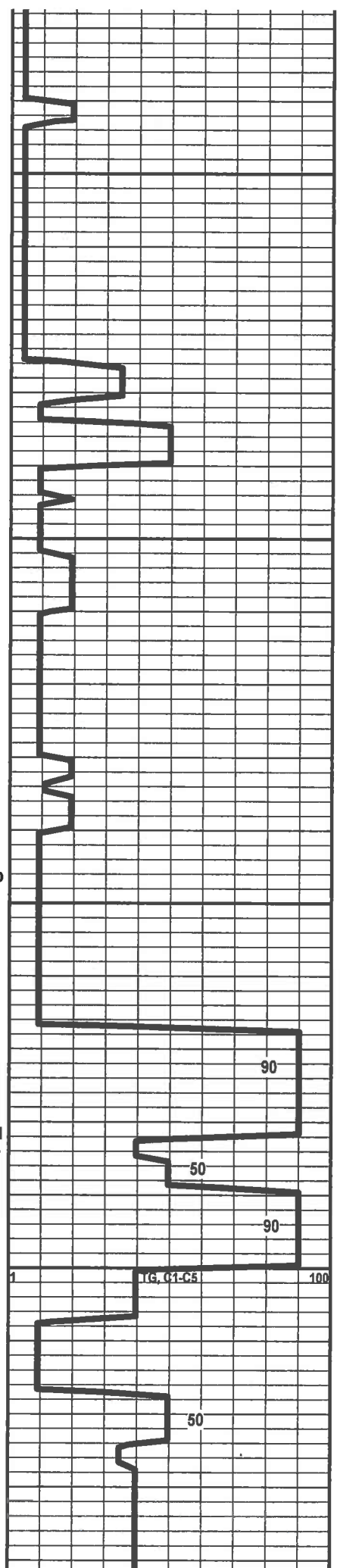
● **SS:** Spec gn to gy s&p lt brn wh occ trnsf fri to hd fl/vfu w srted sbrnd grs ca cmt cln to arg ip with sm clay infill glauc sl arctic fr to occ exc intgran por bri mot orng gold hydc flor(all SS) gd to fr strmg cut gas bubbles when crushed tr live o & even o stn o odor

● **LS:** Mot brn gy biomicr f xln sbchky cln foss sndy & glauc ip carb p vis por occ dull mot hydc flor wk cut pred tt with SS: Gy to gn s&p spec gn hd dns sl fri ip carb tt/tr intgran por mot yel/gold hydc flor fr strmg cut tr o stn & live o sl odor

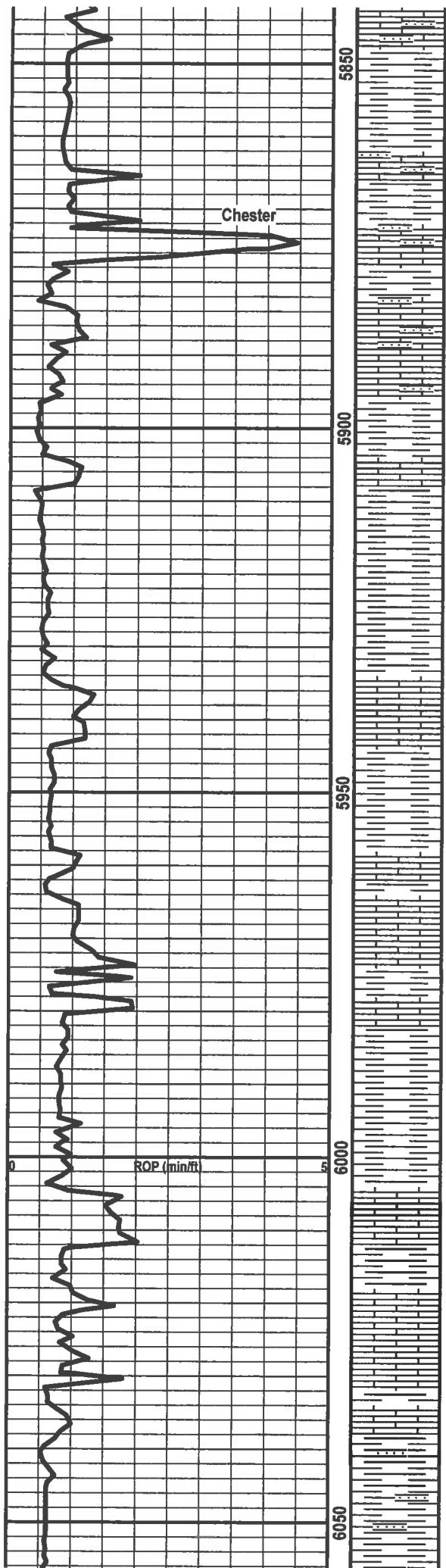
● **SS(50% spl)** Lt to med brn lt gn to gy spec gn fri fl w srted sbrnd grs occ fu/vfl & mod srted ca cmt cln glauc exc intgran por vug por bri yel gold hydc flor(all SS) gd strmg cut gas & oil bubbles when crushed oil odor exc show

● **SH:** Med to lt brn to gy gygn gn hd blk carb calc v sndy & grdng to mrly SS: Dk gn s&p gy fri calc clay cmt with infill pred tt dull to occ bri orng hydc flor fr cut wk show with LS: Mot brn gy micr f xln sbchky foss sndy tt no show with SS: aa Lt to med brn lt gn to gy spec gn fri fl w srted sbrnd grs occ fu/vfl & mod srted ca cmt cln glauc exc intgran por vug por bri yel gold hydc flor gd strmg cut gas & oil bubbles when crushed

● **SH:** Dk mot brn gy blk frm fis carb occ blk & sndy







LS: Mot brn to gy occ gygn to gn f xln sbchky foss v  
sndy & glauc ip carb occ tr dull hydc flr wk cut wk show

SH: Blk dk mot gy to brn blkly to fis carb calc sndy with  
SH: Dk mot brn blkly v calc foss sndy

LS: Lt to med mot brn to orng bf dk mot gy f xln sbchky  
cln to arg foss occ sndy & glauc p vis por occ tr pale mot  
bl hydc flr fnt cut no stn wk show intbd with SH: Med  
gy blk sbfis wxy sft carb calc

SH: Med gy to gn frm sft wxy calc carb occ intbd with  
LS: Pred aa no flr no stn or cut

SH: Med gy to gn frm to sft sbfis wxy calc carb ip

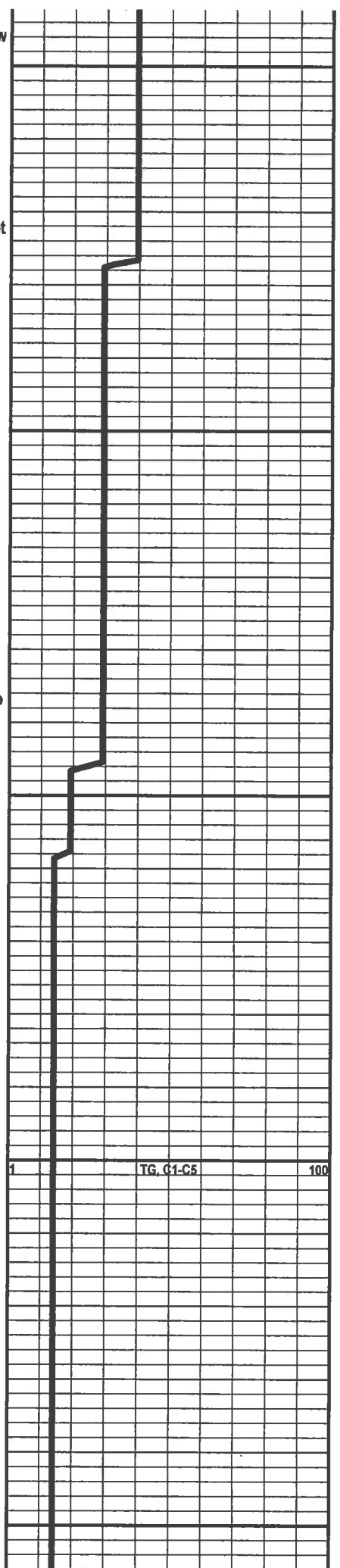
LS: Lt mot brn to orng f xln micsuc chky cln foss carb no  
show intbd with SH: Med gy to gn frm to sft sbfis wxy  
calc carb ip

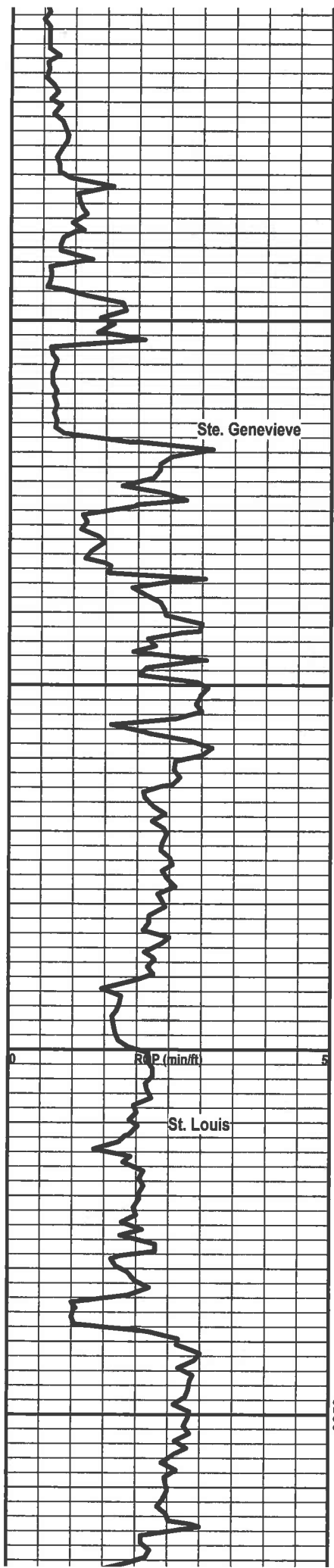
LS: Lt to med mot orng to brn f xln sbchky cln to arg ip  
foss pyr p vis por no flr no stn or cut intbd with SH: Gy  
brn blk frm bly carb calc

SH: Gy brn blk frm bly carb calc

LS: Lt to med mot orng to brn f xln sbchky cln to arg ip  
foss pyr p vis por no flr no stn or cut intbd with SH: Gy  
brn blk frm bly carb calc

SH: Gy brn blkly calc occ v sndy carb incl





LS: Mot brn to gy gygn occ bf to wh & chky ip crpxln hd dns sil arg tt no show

LS: Mot brn to redbrn s&p gy gygn to lt gn varic ip f xln dns foss ool with tr oomoldic por mot brn o stn tr gilsonite v dull hydc flor fr strmg cut no live oil wk show intbd with SH: Red to orng mar viol gn varic blkly wxy calc

SH: Red to orng mar viol gn varic blkly wxy calc

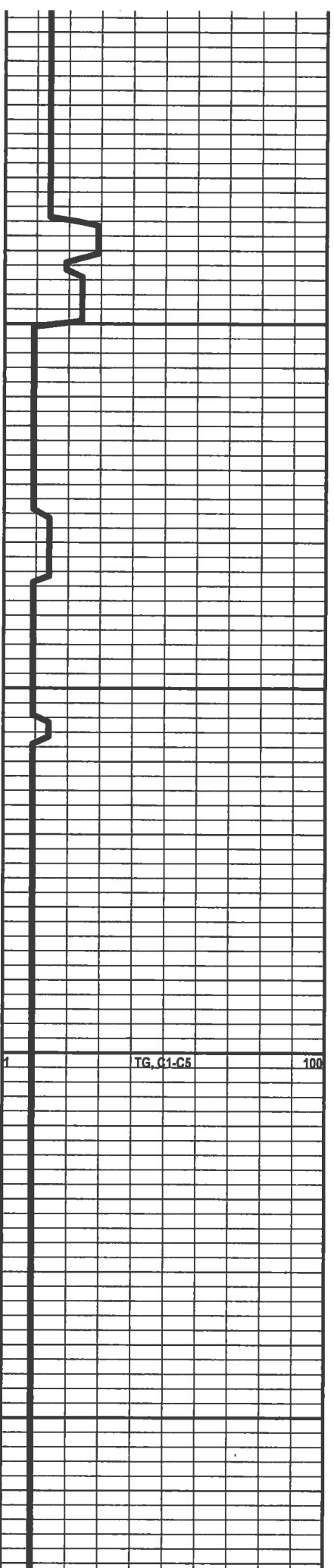
LS: Mot brn lt brn to bf wh f xln micsuc brit cln to arg ip v sndy foss p vis por no flor no stn or cut intbd with SH: Gy gygn brn CHRT: Blk mlky gy trnsl hd xln

LS: Lt brn bf micxln micsuc brit cln v sndy ool ip with tr oomoldic por no flor no stn or cut tr CHRT: Mlky gy wh trnsl

LS: Lt brn bf micxln micsuc brit cln v sndy ool ip with tr oomoldic por no flor no stn or cut tr CHRT: Mlky gy wh trnsl

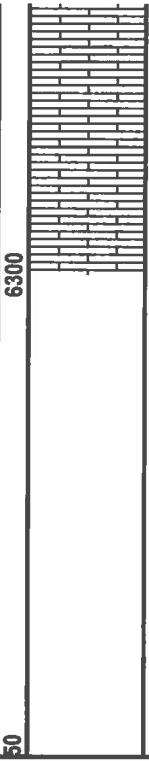
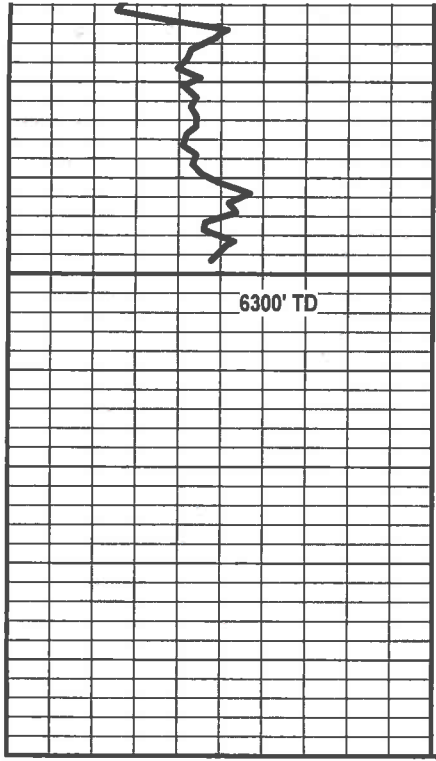
LS: Lt brn wh bf micxln micsuc brit cln v sndy ool occ intxn & oomoldic por no show

LS: Lt brn wh bf micxln micsuc brit cln v sndv ool occ



TG, C1-C5

100



intxn & oomoldic por no show

